

IN THE CLAIMS

Upon entry of the present amendment, the status of the claims will be as is shown below. This listing of claims replaces all prior versions and listings of claims in the application:

1-7. (Cancelled)

8. (Previously Presented) The digital reception apparatus according to claim 13, wherein the linear compensator corrects the non-linear distortion using at least a non-linear quantization characteristic of the quantizer.

9. (Cancelled)

10. (Previously Presented) The digital reception apparatus according to claim 8, the distortion converter further comprising:

a calculator that performs an arithmetical calculation on the non-linear quantized signal.

11. (Previously Presented) The digital reception apparatus according to claim 13, wherein the distortion corrector comprises a signal processor that performs digital signal processing on the non-linear quantized signal, the signal processor converting the non-linear signal into a signal represented by a code related to at least one characteristic of the received signal.

12. (Previously Presented) The digital reception apparatus according to claim 11, wherein the receiver performs the reception processing on the received signal based on a control signal contained in a demodulated linear signal.

13. (Currently Amended) A digital reception apparatus, comprising:

a receiver that performs reception processing on a received signal, the receiver comprising a non-linear quantizer that converts the received signal to a non-linear quantized signal;

a distortion converter that converts the non-linear quantized signal to a linear signal for demodulation, the distortion converter comprising a linear compensator, the non-linear quantized signal being input to the linear compensator which determines a correcting signal that is indicative of an inverse characteristic of the non-linear quantized signal, the correcting signal being utilized by the linear compensator to convert the non-linear quantized signal to the linear signal,

the distortion converter further comprising:

a filter calculator that performs a filter calculation on the non-linear quantized signal.

14. (Currently Amended) A digital reception apparatus, comprising:

a receiver that performs reception processing on a received signal, the receiver comprising a non-linear quantizer that converts the received signal to a non-linear quantized signal;

a distortion converter that converts the non-linear quantized signal to a linear signal for demodulation, the distortion converter comprising a linear compensator, the non-linear quantized signal being input to the linear compensator which determines a correcting signal that is indicative of an inverse characteristic of the non-linear quantized signal, the correcting signal being

utilized by the linear compensator to convert the non-linear quantized signal to the linear signal.

~~The digital reception apparatus according to claim 13,~~ wherein the linear compensator comprises a distortion compensator that multiplies the received signal and the correcting signal to remove the non-linear distortion from the received signal.

15. (Previously Presented) The digital reception apparatus according to claim 11, wherein the code comprises codes based on a logarithm representation of the digital signal processing.

16. (Previously Presented) The digital reception apparatus according to claim 11, wherein the code comprises linear codes.

17. (Previously Presented) The digital reception apparatus according to claim 13, wherein the received signal comprises an instantaneous signal.

18-20. (Cancelled)

21. (New) A digital reception apparatus, comprising:

a receiver that performs reception processing on a received signal,

an adjuster that adjusts the amplitude of the received signal after the reception processing;

a distortion estimator that estimates a non-linear distortion of the received signal after the reception processing, the non-linear distortion being caused by the reception processing;

a distortion corrector that performs a distortion correction on the estimated non-linear distortion;

a controller that controls the adjuster based on a gain control signal such that the amplitude of a desired signal contained in the received signal after the reception processing and the distortion correction approaches a required level,

wherein the distortion estimator estimates the non-linear distortion of the received signal with reference to the gain control signal.

22. (New) The digital reception apparatus according to claim 21, wherein the receiver comprises a quadrature demodulator that performs quadrature demodulation processing on the received signal.

23. (New) The digital reception apparatus according to claim 21, wherein the receiver comprises a filter calculator that performs filter calculation to limit a frequency band of the received signal.

24. (New) The digital reception apparatus according to claim 21, wherein the receiver comprises a quantizer that performs quantization on the received signal.

25. (New) The digital reception apparatus according to claim 24, wherein the quantizer performs linear quantization on the received signal.

26. (New) The digital reception apparatus according to claim 24, wherein the quantizer performs non-linear quantization on the received signal.

27. (New) The digital reception apparatus according to claim 26, wherein the distortion corrector performs distortion correction on a received signal that has been converted into a non-linear signal from a linear signal by the quantizer, using a quantization characteristic of the quantizer.

28. (New) The digital reception apparatus according to claim 27, further comprising:

a filter calculator that performs filter calculation on the received signal that has been converted into a non-linear signal by the quantizer.

29. (New) The digital reception apparatus according to claim 27, further comprising:

a calculator that performs arithmetical calculation on the received signal that has been converted into a non-linear signal by the quantizer.

30. (New) The digital reception apparatus according to claim 26, wherein the distortion corrector comprises a signal processor that performs digital signal processing on the received signal that has been converted into a non-linear signal by the quantizer, and the signal processor converts the digital-signal-processing processed received signal into a signal represented by a code system used in another digital signal processing to be performed on the digital-signal-processing processed received signal.

31. (New) The digital reception apparatus according to claim 30, further comprising:

a converter that converts a demodulated signal obtained by demodulation processing in the signal processor into a linear signal,

wherein the receiver performs the reception processing on the received signal, based on a control signal contained in the demodulated signal that has been converted into the linear signal.